

[METHOD OF FORMING CONTACT OPENING AND METHOD OF FORMING SEMICONDUCTOR DEVICE]

Abstract

A method of forming a contact opening is provided. First, a substrate having a plurality of conductive structures formed thereon is provided. An ion implantation is performed. Thereafter, a thermal treatment is carried out to form a liner layer on the sidewall of the conductive structure and the exposed substrate. The liner layer on the sidewall of the conductive structure has a thickness smaller than the liner layer on the substrate surface. A spacer is formed on each side of the conductive structure and then an insulation layer is formed over the substrate. The insulation layer is patterned to form a contact opening between two neighboring conductive structures. Since the liner layer on the sidewall of the conductive structures is already quite thin, there is no need to reduce thickness through an etching operation and uniformity of the liner layer on the substrate can be ensured.